### MEMORANDUM

April 15, 1976

To: Ron Robinson

From: Douglas Houck

Subject: Olympia STP Class II Inspection

On January 22, 1976 I went to the Olympia sewage treatment plant to install three composite samplers. The influent sampler was located in a wet well just before the comminutor. Another sampler was located at the end of the clarifier, before chlorination. The third composite sampler was located at the end of the chlorine contact chamber. All samplers were adjusted to take a 250 ml alequot every 30 minutes.

Due to the location of the venturi flume a check on their flow measuring device could not be done.

I returned on the 23rd with Mike Morhous to collect the samplers. The third sampler located at the end of the contact chamber had not taken a sample during the whole 24 hour period. The composite samples were not split with their lab as they were having operational problems at the time. The following table gives DOE's results of the composite sample, Olympia's results from their own samples taken that week and their NPDES weekly average effluent limitations.

	DOE		01ymp	ia	NPDES		
	Inf.	Eff.	Inf.	Eff.	Weekly Avg.		
BOD <sub>5</sub> (mg/1)	490	420	568	478	690		
T.S.S. (mg/1)	240	170	290	91	400		
Fecal Coliform (colonies/100 ml)		Est. 400		270	1500		
рН	7.2				6.0 - 9.5		

The table shows that although they didn't receive much  ${\rm BOD}_5$  reduction they are still within their permit limitations. It should be pointed out that the effluent results reported by Olympia were taken at the end of the chlorine contact chamber. This shows that they are getting good  ${\rm BOD}_5$  and especially total suspended solids reduction within the chlorine contact chamber.

I returned again to their lab the following month to review their laboratory procedures. They were quite adequate and are some of the best in the state.

DH:ee

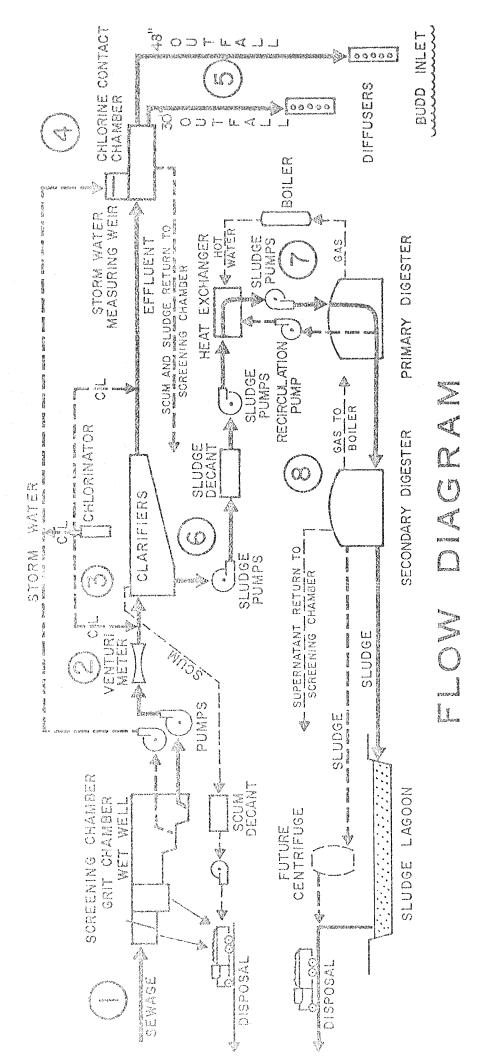
### STP Survey Report Form

## Efficiency Study

CityOlympia	Plant Type Prima	ry Pop.	Served	25,000	_ Design_	9.1 MGD
Receiving Water	Budd Inlet	Perennia	al_X	Intermitt	Capacity ent	X
Date 1-22/23-76 Surv	vey Period 24	hrs.	Survey I	Personnel_	Houck	
Comp. Sampling Free	quency 30 min.	Sampli	ing Alequ	ot <u>250 m</u>	1]	
Weather Conditions	(24 hr) rainy/cl	ear Are fa	acilities	s provided	for comp	lete by-
pass of raw sewage?	? X Yes	_No/Freque	ency of l	oypass		wasyinnya, ayyak diddigi diiyayaya wikisa aridga yaya ilidirina
Reason for bypass_		Is byp	eass chlo	orinated?	X Yes	No
Was DOE Notified?						
	Plant	Operation				
Total flow		_ How meas	sured	Venturi Flo	ıme	
Maximum flow 1	1.0	_ Time of	Max.	0900 - 1600	)	Mort derlands as an angual philosophic delated belongs as any design of particular any options are an about the
Minimum flow	3.0	_ Time of	Min.	1200 - 050	)	Make kaisen sagain kalen sengapi kaon na adam angai ma
Pre Cl <sub>2</sub>						#/day
		l Results			Effluent	
Determinations	Max. Min.	Mean	Median	Max. M	in. Mea	n Median
Temp °C pH (Units) Conductivity (µmhos/cm²) Settleable Solids (mls/1)			7.2			6.8
	Laboratory Res			Makin		
Laboratory No.	Influent 76-0299	Efflu∈ -0	300	% Red	uction	
5-Day BOD ppm COD ppm T.S. ppm T.N.V.S. ppm T.S.S. ppm N.V.S.S. ppm pH (Units) Conductivity (µmhos/cm²) Turbidity(JTU's)	490 620 722 291 240 7.5	52 61 27 17	0	выдвательного по выповательного по выдвательного рым выдвательного рым выдвательного рым выдвательного рым выдвательного рым выдвательного рым	14% 16% 17% 7% 29% 58%	

# Laboratory Bacteriological Results

	Sampling Time	Total Colifor	F	ies/100 m ecal	l (MI Fed Sti	al	Cl <sub>2</sub> Residua	ıl
	T	COLLIOI		OTTIOTII	1	ер		
					<b> </b>			
					<del> </del>			
		Additio	nal La	boratory	Resul	ts		
NO <sub>3</sub> -N ppm		0.3	37					-
NO <sub>2</sub> -N ppm NH <sub>3</sub> -N ppm		δ.0 6.3						
T. Kjeldah			)			<del></del>		
0-P04-P pp	om –	0.3						
T-PO4-P pp	om –	3.7	· · · · · · · · · · · · · · · · · · ·					
Operator's N	lame	Ken Nu	ırmi		Ph	one No	753-8386	
		The second	of Coli	loghion C				
		Type o	of Col	lection S	ystem			
X Combined	Separ				Estim	ate flo	ow contribute and water (in	d by sur- filtratio
X Combined	Separ				Estim	ate flo	ow contribute and water (in	d by sur- filtration MGD
X Combined	Separ	 rate	Both		Estim face	ate flo	ow contribute and water (in	filtratio
X Combined Annual average		rate	Both t Loadi	ing Infor	Estim face natio	ate floor grou	ow contributed ind water (in the late (mgd)	filtratio
		rate	Both t Loadi	ing Infor	Estim Face natio	ate floor grou	and water (in	filtratio
Annual avera	ge daily	Planty flow ra	Both t Loadi	ing Information	Estim Face natio	ate floor grounds	nnd water (in	filtratio



# PLANT OPERATION

- 1, Sewage enters the plant where screenings and grit are removed.
- 2. The sewage is pumped through a flow measuring Venturi meter and prechlorinated to control odors prior to entering clarifiers. Storm water is chlorinated and pumped to a measuring weir for flow measurement and re-enters the system at the chlorine contact chamber.
- 3. Sewage enters the clarifiers where solids are allowed to settle for transfer as sludge to the digesters.
- 4. The clarified effluent (liquid) receives additional chlorination and is discharged to the chlorine contact chamber to allow time for adequate disinfection. Scum and sludge collected is returned to the screening chamber.

- 5. Treated effluent is discharged into Budd Inlet through two outfalls with diffusers.
- 6. The sludge from the clarifiers is thickened in a sludge decanting tank, and pumped through a heat exchanger to the primary digester.
- 7. The sludge is then recirculated to maintain the temperature necessary in this stage of the digestion process. Gas reclaimed from the digester is burned to heat the sludge.
- 8. In the secondary digester, the digestion process is completed and the digested sludge is transferred to the sludge lagoon for drying. A centrifuge will be added in the future for sludge drying prior to disposal.

### STATE OF WASHINGTON

# DEPARTMENT OF ECOLOGY

LAB.FILES.....

OLYMPIA LABORATORY

DATA SUMMARY

Source DLYMPIA STP				Collected By D. Houck							
Date Collected /- 22/23-	76	Samuel									
Log Number: 76-	0299	300		278			naga-notaenes nagaspaspaspaspaspaspaspaspaspaspaspaspaspa		Wymienschill Middle Street School of the Street American Street American Street American Street American Street		
Station:	101	EFF									
pli	7.5	7.3			No. 100 - AD-POLOGICA - Option - AD-POLOGICA						
Turbidity (NTU)											
Sp. Conductivity (umhos/cm)											
COD	620	520	P-0-40A/little-Politic-book-biologis-origin								
BOD (5 day)	490	420	and the state of t								
Total Coliform (Col./100ml)		•									
Fecal Coliform (Col./100ml)				EST 400							
NC3-N (Filtered)		0.37	and the state of t								
NO2-N (Filtered)		0.01									
NH3-N (Unfiltered)		6,3	white the same and								
T. Kjeldahl-N (Unfiltered)		-									
<b>0-</b> P04-P <b>(</b> Filtered)		0.30	·								
Total PhosP (Unfiltered)		3.7	·								
Total Solids	722	610									
Total Non. Vol. Solids	291	270									
Total Suspended Solids	240	170				¥					
Total Sus. Non Vol. Solids	60	25	North Control of the							an electrical designation of the second	
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	Andrew Million and Million and Andrew Andrews										

Note: All results are in PPM (mg/L) unless otherwise specified. ND is "None Detected" (" is "Less Than" and ")" is "Greater Than"